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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/690,704	10/23/2003	Max Shtein	10020/29701	9763
23838	7590	02/11/2005	EXAMINER	
KENYON & KENYON 1500 K STREET, N.W., SUITE 700 WASHINGTON, DC 20005			TUROCY, DAVID P	
			ART UNIT	PAPER NUMBER
			1762	

DATE MAILED: 02/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/690,704

Applicant(s)

SHTEIN ET AL.

Examiner

David Turocy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) 21-32 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 6/4/04, 3/28/03
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_

**DETAILED ACTION**

***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-20, drawn to a method for depositing an organic film, classified in class 427, subclass 421.
- II. Claims 21-32, drawn to a device for depositing an organic film, classified in class 239, subclass 135. The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the apparatus as claimed could be used in an entirely different process such as spraying at slower velocities that does not require a "jet".

3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

4. During a telephone conversation with John McGroarty on 1/14/2005 a provisional election was made without traverse to prosecute the invention of Group I, claim 1-20. Affirmation of this election must be made by applicant in replying to this Office action. Claims 21-32 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

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5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

### ***Claim Objections***

6. Claims 1-20 are objected to because of the following informalities:

a. In claims 3 and 4 the term "the background atmosphere" is utilized to limit the pressure during the spraying process. For the purposes of applying art, the examiner is going to interpret "background atmosphere" to be "background pressure".

b. In claims 1, 3, 5, 6, 7, and 14, the terms "the dynamic pressure", in claim 1, and "the background pressure" in claims 3, 5, 6, 7, and 14 lack antecedent basis. While this does not make the scope of the claims indefinite, the claims better read for example in claim 1, "wherein a dynamic pressure in the region between the nozzles and the substrate" or in claim 14, "wherein providing a background pressure at least about  $10e-3$  Torr". In addition, the examiner has acknowledges the limitations, "background pressure" is the pressure in an area where the deposition is occurring, measured far from any effect of the "jet", and

"dynamic pressure" is the pressure between the nozzle and the substrate surrounding the jet.

c. In claim 19, the term "at least about 760 Torr" lacks antecedent basis because the claim from which it depends recites a pressure of "about 760 Torr". For the purposes of applying art, the examiner reads "at least about 760 Torr" to read on "about 760 Torr".

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. Claim 7 recites the limitation "the base pressure" in line 1. There is insufficient antecedent basis for this limitation in the claim. For the purposes of applying art, the examiner reads "the base pressure" to read on "the background pressure".

***Claim Rejections - 35 USC § 102***

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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11. Claims 1-3, 10, 14-18, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 4788082 by Schmitt ("Schmitt").

~~Schmitt discloses a process for depositing a film using a carrier gas (Abstract).~~

Schmitt also discloses ejecting a carrier gas, hydrogen or helium, where the flow velocity is on the order of the speed of sound of the carrier gas or about one kilometer per second, which is greater than 10% of the thermal velocity of the carrier gas (Column 19, lines 59-62). Schmitt discloses depositing organic molecules to form coatings, including polymeric coatings (Column 30, lines 21-38). Schmitt discloses depositing the organic material using an atmospheric background pressure, i.e. 760 Torr, which reads on the background pressures as claimed (Column 21, lines 31-47, Column 24, lines 49-64). It is the examiners position that spraying in an atmospheric pressure environment inherently results in a pressure between the substrate and the nozzle, applicants "dynamic pressure", as claimed. Schmitt also discloses that though high vacuum systems are often complicated they are often utilized when depositing thin films (Column 1, line 66 – Column 2, line 3). Schmitt also discloses providing a depositing species with a molecular weight greater than the carrier gas (Column 11, lines 48-58).

### ***Claim Rejections - 35 USC § 103***

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

14. Claims 4-5, 6, 9, and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 4788082 by Schmitt ("Schmitt") in view of US Patent 6468605 by Shah et al. ("Shah").

Schmitt teaches all the limitations of these claims as discussed above in the 35 USC 102 (b) rejection, however, Schmitt fails to teach providing a guard flow.

However, Shah teaches of a method for producing a high-speed jet of coating material and gaseous carrier gas (Abstract). Shah discloses providing a guard gas (24) from the nozzle surrounding the gaseous spray (Column 3, line 52-Column 4, line 6, Figure 1). Shah discloses the guard gas facilitates screening, directing, and shaping of the spray coating to provide the appropriate coating (Column 4, lines 1-2). Shah also discloses using a guard gas including argon and nitrogen (Column 4, lines 3-4). It is the

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examiners position that the guard gas flow, as disclosed by Shah, would inherently affect the "dynamic pressure" or the pressure between the nozzle and the substrate.

Therefore, it would have been obvious to one skilled in the art at the time of the invention to modify Schmitt to use the guard flow suggested by Shah to provide a desirable high speed spray coating because Schmitt teaches spraying, at high speeds, a coating material entrained in a carrier gas and Shah teaches providing a guard gas provides for shaping, directing, and screening of the coating material entrained in a carrier gas. Please note that the test of obviousness is not an express suggestion of the claimed invention in any or all references, but rather what the references taken collectively would suggest to those of ordinary skill in the art presumed to be familiar with them (*In re Rosselet*, 146 USPQ 183).

Claim 9: Schmitt in view of Shah discloses using a guard gas, argon or nitrogen, which has a larger molecular weight than the carrier gas, hydrogen or helium.

15. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 4788082 by Schmitt ("Schmitt") in view of US Patent 6468605 by Shah et al. ("Shah") and further in view of Kirk-Othmer Vacuum Technology "Kirk-Othmer".

Schmitt in view of Shah teaches all the limitations of these claims as discussed above in the 35 USC 103 (a) rejection, however, Schmitt in view of Shah fails to explicitly teach providing a pressure less than 0.1 Torr.



However, Kirk-Othmer, teaching of known uses of vacuum technology, discloses a high vacuum corresponds to a controlled vacuum system (Pg 750, last paragraph). In addition, Kirk-Othmer discloses using various pressures, including pressures less than 0.1 Torr, for various controlled vacuum processes (Table 1). Therefore it is the examiners position that the pressure within the vacuum is a result effective variable, which varies depending on the coating material and substrate.

Therefore it would have been obvious to one skill in the art at the time of the invention was made to determine the optimal pressure within the vacuum chamber, including less than 0.1 Torr, to deposit a thin film as disclosed by Schmitt in view of Shah, through routine experimentation, to provide the desired coating of a substrate under vacuum conditions.

16. Claims 13 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 4788082 by Schmitt ("Schmitt") in view of US Patent 6468605 by Shah et al. ("Shah") and further in view of US Patent 5709906 by Bickford et al. ("Bickford").

Schmitt in view of Shah teaches all the limitations of these claims as discussed in the 35 USC 103 (a) rejection above. In addition, Schmitt teaches purging the system using the inert carrier gas to remove any unwanted species in the system, which might have been there when left open to the ambient environment (Column 21, lines 31-40). However, Schmitt in view of Shah fails to teach using a glove box.

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However, Bickford discloses using a chamber that either can be purged with an inert gas, using an inlet tube and one-way nozzle, or the operation can take place in a glove box under an inert atmosphere (Column 8, lines 53-56). The examiner acknowledges Bickford is direct to electrochemically reducing organic compounds, however, Bickford is only utilized here to show that an inert glove box is a known substitute for purging a chamber prior using a carrier gas. Substitution of equivalents requires no express motivation. *In re Fount*, 213 USPQ 532 (CCPA 1982); *In re Siebentritt* 152, USPQ (CCPA 1967).

Therefore, it would have been obvious to one skilled in the art at the time of the invention to modify Schmitt in view of Shah to use the glove box with an inert gas atmosphere suggested by Bickford to provide a desirable inert atmosphere without unwanted species because Schmitt in view of Shah teaches purging the spray chamber with inert gas prior to applying the coating and Bickford teaches a glove box with an inert atmosphere is a known substitute for inert gas purge of a chamber.

### **Conclusion**

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Patent 4869936 by Moskowitz et al. discloses a nozzle utilizing a carrier gas with a surrounding guard gas during thermal spraying process.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Turocy whose telephone number is (571) 272-

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2940. The examiner can normally be reached on Monday-Friday 8:30-6:00, No 2nd Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on (571) 272-1415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David Turocy  
AU 1762

  
**KATHERINE BAREFORD**  
**PRIMARY EXAMINER**